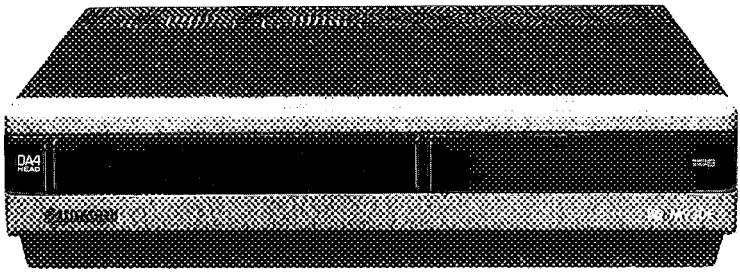
V15736

HITACHI VIDEO DECK
VT-M930E(CT)



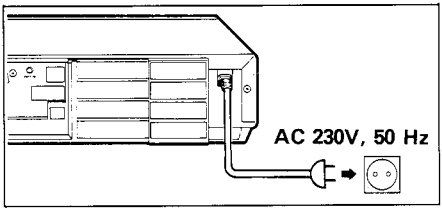
Instruction manual

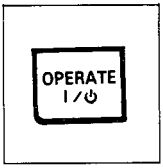
To obtain the best performance and ensure years of trouble-free use, please read this instruction manual completely.

VHS
PAL

WARNING

Mains supply: AC 230V, 50 Hz only





- The OPERATE switch located behind the front door of the VTR switches the VTR on and off, leaving the clock/timer facility unaffected.
- As to the indication of the OPERATE switch, " I " shows ON and " ⏻ " shows electrical power stand-by.
- The OPERATE switch is secondarily connected and does not separate the apparatus from the mains supply in the switched-off position.

This product is manufactured to comply with the radio interference requirements of EEC Directive 76/889/EEC & 82/499/EEC, 87/308/EEC.

On Safety

- Do not remove panel covers by unscrewing. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose this unit to rain or moisture.
- Should any solid object or liquid fall into the cabinet, remove the mains lead and have it checked by qualified personnel before operating it any further
- To disconnect the mains lead, pull out the plug itself.
  Never pull the lead.
- If the unit is to be left unattended for a long period and it is not intended to use the timer recording function, it is recommended that the VTR be switched off and the plug removed. If you intend to record during your absence, remember there is no necessity for the TV receiver to be switched on.

Note: It is permissible to record television programmes only in the event that third party copyrights and other rights are not violated.

Notes on colour broadcasting systems

1. This unit can receive programmes which are broadcasted by B/G-SECAM system, and record and play back colour television signals.
2. When the cassette recorded in above 1 is played back on a SECAM or PAL recorder, a black and white picture will be obtained.
3. When a cassette recorded on a SECAM recorder or a SECAM prerecorded cassette is played back by this unit, a black and white picture will be obtained.
4. This unit cannot be used in France. Please use a SECAM recorder there.

PRECAUTIONS

On Installation

- Choose a location where air can pass through the ventilation holes in the bottom, top and back of the unit to prevent it from overheating.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibrations or shocks.
- Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.
- Do not install the unit in an inclined position.
  The unit is designed for operation in a horizontal position.

On Operation

- Moisture condensation
  If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is moisture condensation.
  Moisture condensation on the head drum, one of the most crucial parts of the VTR, will cause damage to the tape.
  The VTR should not be operated for at least 2 hours after being moved from a cold to a hot environment to avoid condensation from occurring on the head drum.

On Cleaning

- Be careful; when the surface of the case is wiped with a volatile agent such as benzine, alcohol, thinner, etc., or a chemically processed cloth, the surface finish may deteriorate or its coating may peel.

On Repacking

- It is wise for you to save the packing materials and box in case you ever need to ship or store your unit.

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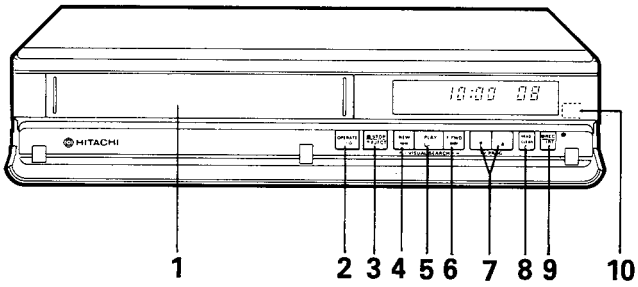
FEATURES

- **Everything can be controlled from the LCD timer remote controller**
- **8-Programme/1-year preset recording with memory backup**
- **Automatic controls for easier operation**
  - Auto Head Cleaning system minimizes the need for accessory cleaners and professional head cleaning. A head cleaning button is also provided for manual cleaning.
  - Auto Tracking system automatically adjusts the tracking so the picture is optimized
  - Rental Play immediately starts to play a tape without its safety tab, rewinds the tape after play is ended and then ejects it.
  - Auto Play immediately starts to play a tape without its safety tab
  - Auto Eject & Auto Tape Canceller eject cassette without its tab when recording
  - Auto Operate On turns system power on by simply inserting cassette
  - Auto Endless Play repeats playing tape from beginning to end
  - Auto Rewind/Rewind Shut-off automatically rewinds tape at its end and automatically shuts off at its beginning if the OPERATE switch is off.
- **High-quality variable slow and still picture — plus dual speed play, visual search and frame advance**
- **Sharp, finely detailed pictures from High Quality (HQ) picture technology**

  HQ The Video Tape Recorder (VTR) with this marking incorporates VHS high-quality picture technology and is compatible with any Video Tape Recorders bearing the VHS mark.
- **Voltage synthesized tuner provides easy, preset tuning for up to 79 channels including CATV channels**
- **Instant Recording Timer (IRT) is possible**
- **Selectable 3-language OSD (On Screen Display)**
- **The remote control unit provided can operate not only two VTRs but also 10 different types of TVs**
- **Compatible with 8-hour long play/long recording using E-240 cassette**
- **Index/Counter GO-TO functions** — convenient for locating the desired programme on your tape
- **Mode Lock can be used to lock the VTR mode (recording, play, etc.)**

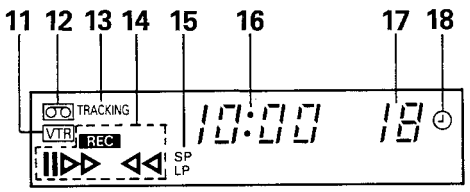
CONTROLS AND FUNCTIONS

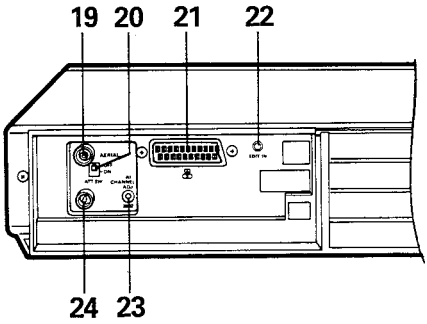


1. **Cassette compartment**
   Insert a cassette through the door, and loading will be completed automatically.
   Note: Power is turned on automatically when a cassette is loaded.
2. **OPERATE switch**
   Turn the system power on and off.
3. **STOP/EJECT button**
   If this button is pressed, while the VTR is operating, the running of tape stops and all operating modes are cancelled (except for timer recording). The cassette is ejected, when this button is pressed again in STOP mode.
   Note: Power may be on or off when removing the cassette.
4. **REW (rewind) button**
   Press to start rewind.
   Press this button during playback and the reverse playback picture can be viewed at high speed.
5. **PLAY button**
   Press to start play.
   During playback, press and hold this button for a few seconds and then release the button to increase the playback speed to twice the normal speed.
   Note: When a cassette (with its erase prevention tab removed) is loaded, playback starts automatically.
6. **F.FWD (fast forward) button**
   Press to activate fast forward.
   Press this button during playback and forward playback picture can be viewed at high speed.
7. **TV PROG (programme) buttons**
   Select the TV programmes you wish to view or record by pressing these buttons.
8. **HEAD CLEAN button**
   Press this button to manually clean the video heads when the dirt cannot be removed by auto cleaning.
9. **REC/IRT button**
   Press the REC/IRT button once to start recording.
   Pressing again lets you select a recording time within 4 hours. After recording for the preset time, the VTR will automatically shut off. This is convenient when you go out during recording.
10. **Infrared ray receiving section**
    Receives infrared rays from the remote control unit.

CONTROLS AND FUNCTIONS

[VTR display]





11. VTR indicator
Will light when the VTR power is turned on.

12. Tape indicator
Lights when cassette is loaded in the compartment.

13. TRACKING indicator
When a cassette tape is inserted and playback is started, the auto tracking function operates automatically so the picture is optimized. This indicator flashes while tracking is being adjusted and lights steadily when adjustment is complete.

14. Mode indicators
- "REC" appears during the record mode.
- "▷" appears during the playback mode.
- "◁◁" appears during the rewind mode and flashes during the rewind visual search mode.
- "▷▷" appears during the fast forward mode and flashes during the forward visual search mode.
- "❚❚" appears during the play/record pause mode.
- "❚❚▷" appears during the slow motion playback mode.

15. Tape speed indicator
Shows tape speed during recording and playback.
SP — Standard play
LP — Long play

16. Clock display
Shows the present time or time counter.

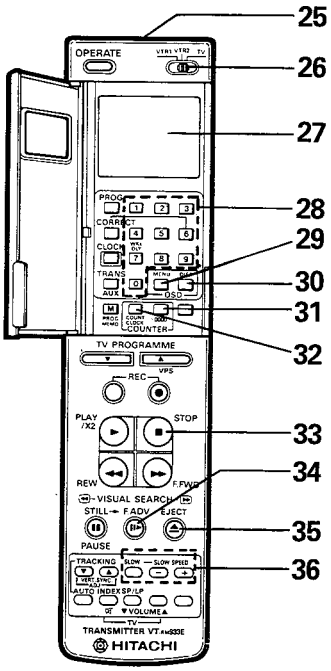
17. TV station number display
This shows the TV station number corresponding to the station selected.
The AU indicator appears when you select the AU position by pressing the TRANS/AUX button on the remote control. AU position is used to record or watch the programme input at the EURO jack.

18. Timer indicator
Will light while the VTR is in the stand-by mode for timer recording or in the IRT mode.

19. AERIAL input socket
Connect an external aerial.

20. Attenuator switch
Generally set to the OFF position. Set it to "ON" when interference occurs in an area with a strong signal.

21. EURO jack
For connection to a TV with a EURO or DIN jack using an exclusive cable. See your dealer for details.



22. **EDIT IN socket**
Connect a camera pause cable.

23. **RF CHANNEL control**
Used to adjust the video channel correctly.

24. **RF OUT socket**
Connect to TV aerial input.

25. **Transmission window**
Transmits commands to the VTR.

26. **VTR 1/VTR 2/TV**
- Set to TV to control TV. (Refer to page 33.)
- Set to VTR 1 or VTR 2 to control two VTRs. (Refer to page 9.)

27. **Clock/time display**
While setting the clock/timer, this display will prompt you through the procedure. After setting the clock, the display shows the clock time.

28. **Number buttons "0" through "9"**
Select any channel by pressing two buttons. (Press "0" and then "8" for TV station 8.) The number buttons are also used for setting the clock and programming the timer.

29. **MENU button**
When presetting channels or recalling the timer programming etc., press this button. The menu is displayed on TV screen.

30. **DISPLAY button**
Calls up the mode display on TV screen for a few seconds.

31. **0000 button**
Reset the time counter to "0:00:00" when the time counter is displayed in the VTR display.

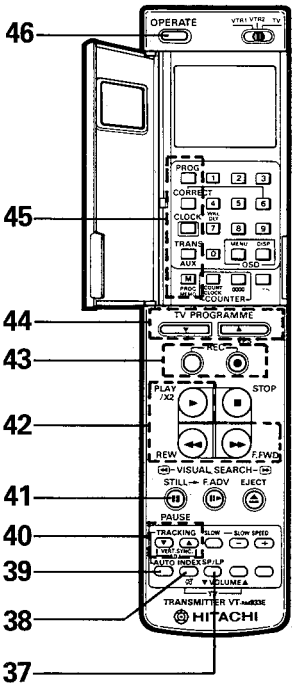
32. **COUNT/CLOCK button**
Press to switch the VTR display between the clock time display and counter display.

33. **STOP button**
If this button is pressed while the VTR is opetating, the tape stops running and all opetating modes are cancelled (except for timer recording).

34. **F.ADV (frame advance) button**
Press to view tape one frame at a time.
Operates only after PAUSE button has been pressed.

35. **EJECT button**
Press to eject a cassette.

36. **SLOW/SLOW SPEED button**
Used for slow-motion play.



37. **SP/LP button**
Used to select the tape speed for recording. The playback speed is automatically set to the speed used in recording.

38. **INDEX button**
Used for INDEX and COUNTER GO-TO functions. See pages 22 and 23 for complete information.

39. **AUTO TRACKING button**
Press to activate the auto tracking function. See page 19 for details.

40. **TRACKING buttons**
Press one of these buttons to minimize noise in the picture manually during playback.

41. **STILL/PAUSE button**
Press to pause during recording.
Press to view a still picture during playback.
Press again to release.

42. **PLAY/REW/F.FWD button**
Same as on the VTR.

43. **REC buttons**
Press two REC buttons at the same time to start recording.

44. **TV PROGRAMME buttons**
Select the TV programmes you wish to view or record by pressing these buttons.

45. **Clock/timer programme buttons**
These buttons are used for setting the clock and programming the timer.
Note: The TRANS/AUX button is also used to select the AU position when recording a signal from external equipment.

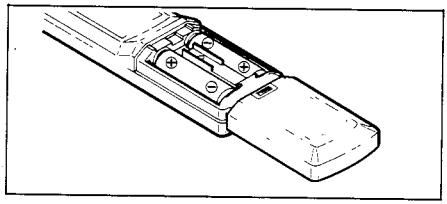
46. **OPERATE button**
Same as OPERATE on the VTR (turns operate on/off).

REMOTE OPERATION

You can operate the VTR from a distance using the Infrared Remote Control unit which performs the same functions as the corresponding buttons on the VTR.

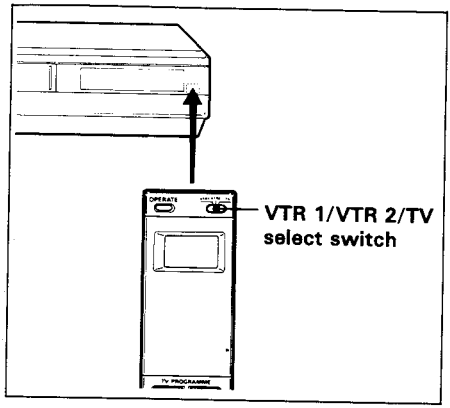
Power source of infrared remote control unit

The infrared remote control unit is powered by two batteries (size IEC standard R6). The life of the batteries is about a year although it depends on the number of times the unit is used. Replace the batteries when operation is not possible or when the distance becomes too small.



Remote operations

To operate this VTR with the remote control, set the VTR 1/VTR 2/TV select switch on the remote control unit to the VTR 1 position, then point it at the receiver on the front of the VTR.



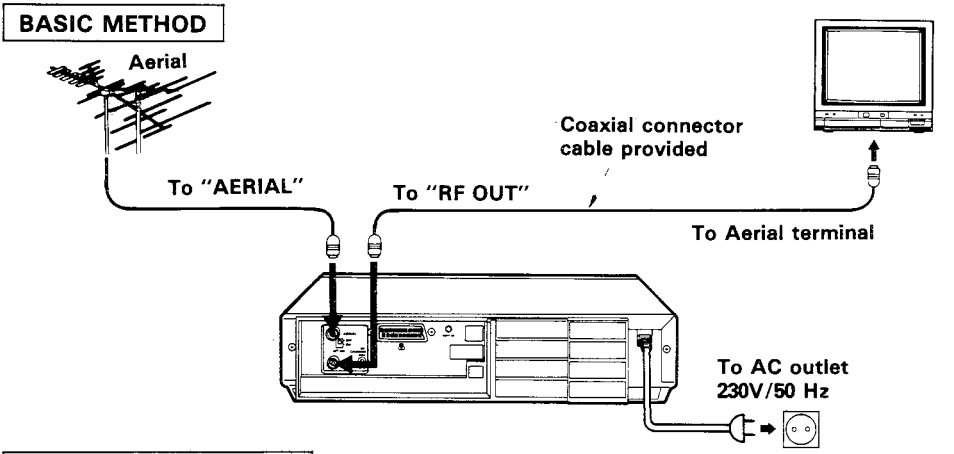
VTR 1/VTR 2/TV switch

The remote control unit provided is designed to operate two VT-M930E units and ten different types of TV.

- Refer to page 33 when using the remote control to operate the TV.
- For tape dubbing, as an example, recording VTR and playback VTR can be controlled by a single remote control unit. When controlling two VTRs, operate the other VTR as the VTR 1 and this VTR as the VTR 2. However, this VTR has been preset to be controlled as the VTR 1. Therefore, set this VTR so it can be controlled as the VTR 2 by following the "REMOTE CODE VTR 1/VTR 2" section on page 25.

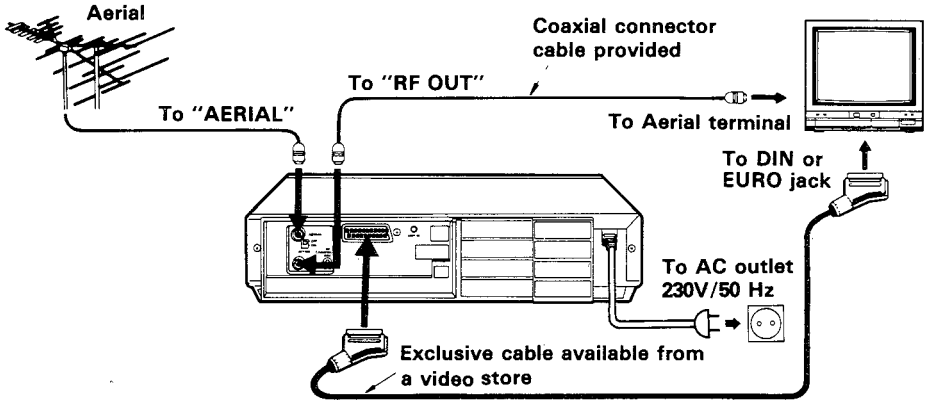
INSTALLATION

BASIC METHOD



APPLICATION METHOD

If your TV set has a DIN or EURO jack, follow the connections below to record and playback much better pictures.
You need an exclusive cable available from a video store when you make the following connections.
Note: Some TV sets are not equipped with a DIN or EURO jack. In such cases, you must connect by the BASIC METHOD.

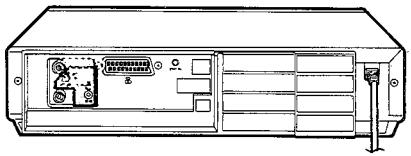


With this connection method:

- During playback, the signals from the EURO jack of the VTR are fed to your TV.
- You can record the programme selected by the programme select button of the TV set. In this case, press the TRANS/AUX button on the remote control so "AU" lights in the VTR display instead of a station number.

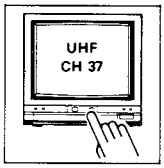
VIDEO CHANNEL SETTING

The RF converter changes the video and audio signals from a previously recorded video tape during playback to the same type of signal used for TV broadcasts. The RF converter output in this unit is pre-set prior to shipment to UHF channel 37.



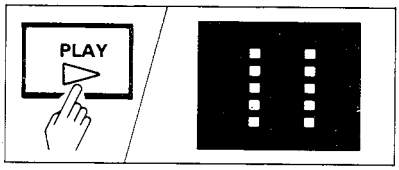
User's controls

1 Turn on the Operate switch of the TV, then set TV to UHF channel 37.



If your TV has a channel button marked "A/V", you can use this channel instead of UHF channel 37.

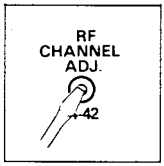
2 Press PLAY button on the VTR with operate switch off.



The test pattern appears on the TV screen. Fine tune your TV until the test pattern is received clearly. Now the video channel has been preset.

You must always select this channel with the channel selector of your TV when playing back a tape or viewing a TV programme selected with the TV PROGRAMME button of the VTR.

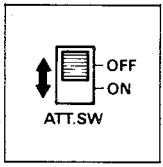
NOTE: If it is not possible to correctly tune to the test pattern or channel 37 is used for broadcasting in your area, adjust the RF converter output with the RF channel control using a small screwdriver and readjust your TV until the test pattern is observed.



When connecting the VTR to a TV set provided with auto-tuning and the video channel cannot be set, operate as follows:

1. Remove the aerial cable from the AERIAL terminal of the VTR.
2. Press PLAY button on the VTR with operate switch off.
3. Press the Auto-tuning button of the TV.
4. Auto-tuning starts and it stops at UHF channel 37.
   The test pattern appears on the TV screen.
   Note: The auto-tuning indicator of the TV set changes to an exact tuning indicator.
5. Set the channel memory of the TV to ON and store the channel which was set in item 4.
   Now, the video channel of the TV has been set properly.
6. Reconnect the aerial cable to the VTR.

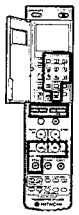
ATTENUATOR SWITCH



The Attenuator switch located on the rear panel of the VTR is used to adjust the reception of the antenna signal. If the wavy lines appear in the picture during the reception of a broadcast from a near-by TV station, it may be that the signal level is too high. In this case, set this switch to ON to attenuate the signal level. Normally leave this switch in the OFF position.

PRE-TUNING OF BUILT-IN TV TUNER

This VTR incorporates a complete television tuner with the required tuning controls. Once you have pre-tuned to preferred stations, you can select any of them by merely pressing the TV PROGRAMME button or Number buttons 0~ 9.

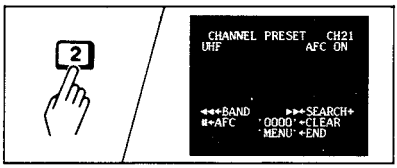


User's controls

1 Turn on the VTR and TV, then set the TV to the pre-tuned video channel (described on page 11).

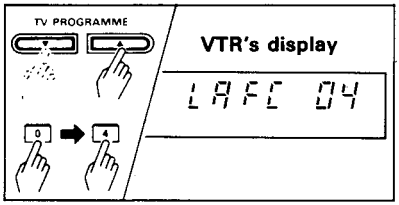
2 Aim the remote control unit at the receiver on the front panel of the VTR.

3 Press the MENU button, and then press "2" button for channel setting.



The "channel setting menu", as illustrated, will appear on TV screen. The VTR's display will also change to band indication.

4 Press the TV PROGRAMME or two number buttons "0"~"9" to select the station number to be memorized.



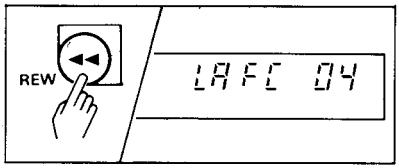
For example, the above diagram shows that the station number 4 has been selected.

Notes:

1. Station numbers "00" through "78" can be now selected by pressing the TV PROGRAMME or two number buttons. In this case, you can use any station number.
2. When "AFC" is not displayed in the VTR display, press the STILL/PAUSE button to display "AFC".

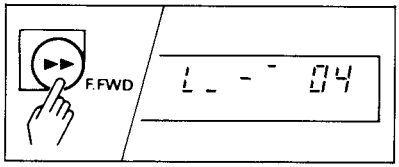
5 Press the REW button to select the desired band to be pre-tuned.

BAND	CHANNELS TO BE TUNED TO
L (VHF-L)	VHF 2 — 4, CATV S1
H (VHF-H)	VHF 5 — 12, CATV S2 — S20
U (UHF)	UHF 21 — 69



For example, the above diagram shows that VHF Low band "L" has been selected.

6 Press and release the F.FWD button to start tuning.



The built-in tuner starts searching from the lowest to highest frequencies.
At a station that is broadcasting, the picture appears on the TV screen. If the programme displayed is different from the station to be preset, press the F.FWD button again.
At the next station, the searching will stop and the new station can be preset. Repeat this until the desired station is reached.

7 Follow the same steps as explained in steps 4 through 6 above for other stations.
You can preset up to 79 stations in memory.

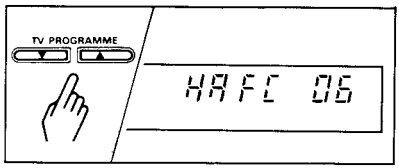
8 After having completed tuning to all required stations, press the MENU button.

These stations preset in memory as shown in the above can be selected by the TV PROGRAMME or two number buttons "0" through "9".

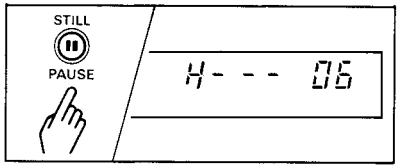
AFC (Automatic Frequency Control)
Since this unit has an AFC circuit, when a station is preset following the above procedure, the AFC turns on automatically and you can receive the signal in optimum condition.
If a TV station signal is marginal due to graininess or ghosting, the picture may sometimes be improved by manually tuning for best picture and then defeating the AFC action. To turn AFC off, follow the procedure below.

1 Follow the steps 1 through 3 of "Pre-tuning of built-in TV tuner" on page 12.

2 Select the station for which you want to turn AFC off by pressing the TV PROGRAMME buttons or two number buttons "0" through "9".

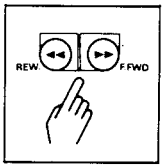


3 Press the STILL/PAUSE button. "AFC" disappears from the display.



Note: Pressing the button once again will turn the AFC on.

4 Tap on the REW or F.FWD button alternately for fine tuning.

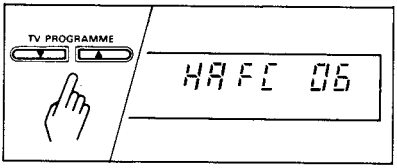


5 Press the MENU button to return to TV screen.

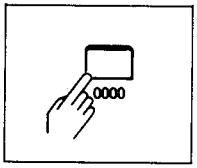
Eliminating unwanted preset stations
You can rearrange the desired stations by eliminating unwanted preset stations for programme up/down tuning.

1 Follow the steps 1 through 3 of "Pre-tuning of built-in TV tuner" on page 12.

2 Press the TV PROGRAMME or two number buttons until an unwanted station is found.



3 Press the 0000 button to delete this station from the VTR's channel scan list.



4 Repeat until all unwanted stations have been erased.

5 After eliminating them, press the MENU button to return to TV screen.

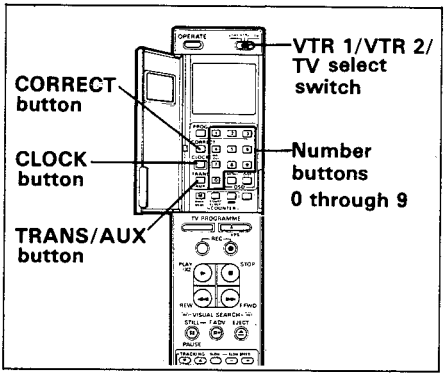
Note: To add an erased station to the channel scan list, preset it again. See page 12.

SETTING THE CLOCK

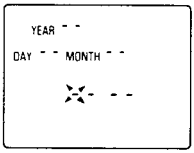
To set the clock of the VTR, first set the clock in the remote control, and then transfer the set time to the VTR.

Things to know before starting

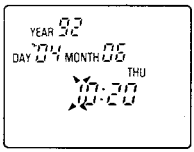
- Set the VTR 1/VTR 2/TV select switch to VTR 1 for setting the clock.
- While you are setting the clock, the display panel on the remote control unit will prompt you through the procedure.
- Always press "0" **before** a single-digit hour, minute, day, month and year.
- If you press the wrong digit during clock setting, press the CORRECT button repeatedly until the incorrect digit flashes then enter the correct digit.
- You have about one minute to do each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must start over.



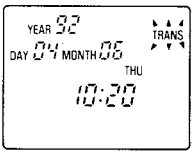
1. Press CLOCK button.



2. Set the clock and date.
   For example, press 1 0 2 0 for 10:20, and then 0 4 0 6 9 2 for the 4th of June, 1992.
   The day of week appears automatically.



3. After setting the date, press CLOCK button.
   The year disappears from the display panel and the clock starts counting.
4. Press CLOCK button once more.
   The year appears along with "TRANS" blinking.

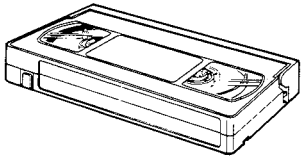


5. Press TRANS/AUX button while aiming the remote control unit at the receiver on the VTR.
   - The transferred clock appears on the display of VTR.

Notes:

- If you correct the clock in the VTR's display after transmitting the information to the VTR, follow steps 4 and 5 above.
- The clock must be set to the correct time before programming the timer for unattended recording or using the Instant Recording Timer (IRT) feature.
- If power is interrupted, "– –:– –" will appear on the display and the clock and timer will need to be reset.

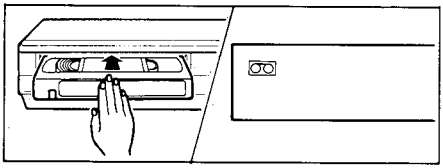
CASSETTE TAPES



Use video cassette with the VHS mark in this VTR.

Insertion

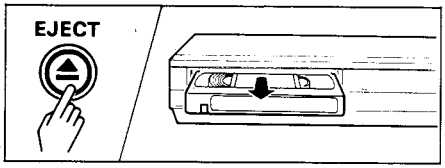
Push the cassette through the door until the VTR mechanism pulls it into the compartment.



VTR power automatically turns on and the indicator turns on when the cassette is in place.

Removal

Press the EJECT button on the remote control or the STOP/EJECT button of the VTR.



The cassette will come partially out of the compartment so you can pull it out.

- The indicator turns off when the cassette is ejected.
- Cassette can be ejected with the power on or off.

Remember that:

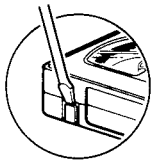
— The VTR automatically enters the playback mode when a cassette without a safety tab is inserted.

— The VTR automatically ejects the cassette if the REC button is pressed when a cassette without a safety tab is in the VTR.

— Be sure to check the safety tab before inserting a cassette for the above reasons.

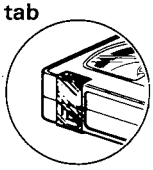
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar tool



To re-record on a cassette which has its safety tab removed

Cover the hole with cellophane tape



Type of video cassette

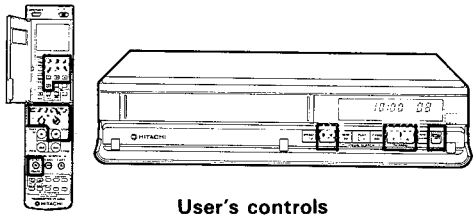
The table below shows the recording time of different cassettes.

TYPE	POSITION OF SPEED SELECT SWITCH	
	SP	LP
E-30	30 minutes	60 minutes
E-60	60 minutes	120 minutes
E-120	120 minutes	240 minutes
E-180	180 minutes	360 minutes
E-240	240 minutes	480 minutes

NOTES:

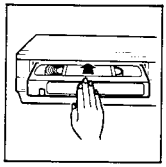
- Change over the SP/LP button on the remote control unit only during recording. It is set to the speed used for recording automatically during play, so it is not required to change over it.
- It is recommended to record in the SP mode for higher quality picture and sound.

RECORDING TV PROGRAMMES

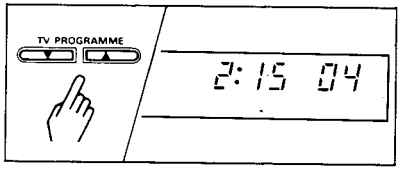


User's controls

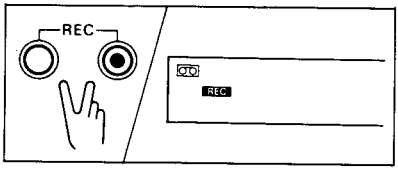
1 Insert a cassette.
Note: Be sure to check that the erase prevention tab is not missing. If it is removed, the VTR is set to playback mode automatically.



2 Select the programme to be recorded by pressing the TV PROGRAMME or two number buttons.



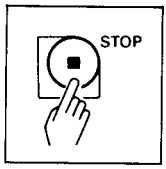
3 Press the REC/IRT button on the VTR or two REC buttons on the remote control unit at the same time.



Now, recording starts.

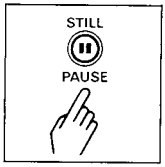
Note: If a cassette without its erase prevention tab is loaded and the REC buttons are pressed, the cassette is ejected automatically.

4 After the recording has been made, press the STOP button.



Notes:

1. If you want to avoid recording unwanted material, press the STILL/PAUSE button. Press the STILL/PAUSE button again to release the pause mode. To prevent tape damage, the VTR will automatically switch from record/pause to the stop mode after about 5 minutes.



2. If you want to change programmes while in the record mode, press the STILL/PAUSE button then select the desired programme. Press the STILL/PAUSE button to release the pause mode.
3. Your TV does not have to be on to make a recording because the VTR records TV programmes without the aid of your TV. It is only used for monitoring.

To view a programme while recording it

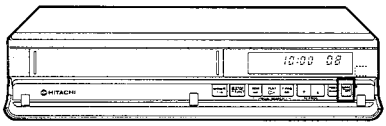
You can view a programme while recording it by merely selecting the video channel (described on page 11) with your TV.

To record one programme while viewing another

You can record one programme while viewing another by merely selecting the programme you want to view on your TV. The recorded programme can be viewed later at your convenience.

INSTANT RECORDING TIMER (IRT)

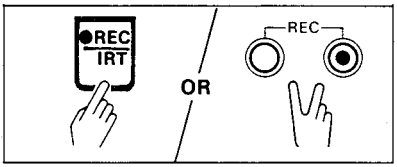
The Instant Recording Timer allows you to make simplified timer recording without using the programme timer. Be sure that the clock is set to the correct time before IRT.



User's controls

1 Follow the steps 1 through 3 on "RECORDING TV PROGRAMMES" on page 17.

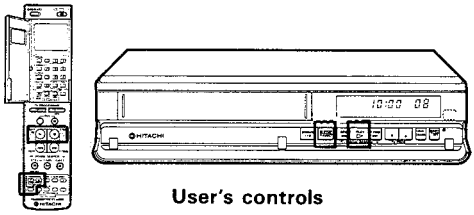
2 After recording has started, press REC/IRT button on the VTR or REC buttons on the remote control once again to indicate the recording time on the display. The time changes in hours and minutes in the order of 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 every time the button is pressed. The ⏲ and REC indications will come on when the recording time is indicated. During recording, the remaining time is displayed.



3 At the end of recording the display reads "0:00"; the VTR will automatically stop recording and the present time will be displayed.

Note: To stop the VTR during "IRT", press OPERATE button and then STOP button within 10 seconds.

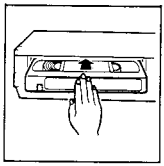
PLAYBACK



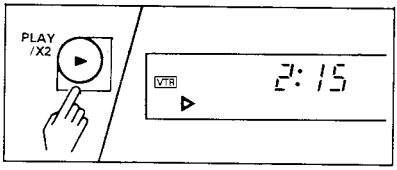
User's controls

1 Turn the TV set on and select the video channel (described on page 11).

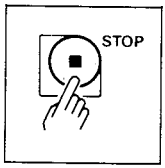
2 Insert the cassette.
Note: When the cassette (with its erase prevention tab removed) is loaded, playback starts automatically.



3 Press the PLAY button.



4 Press the STOP button to stop playback.



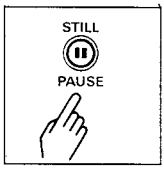
Auto Tracking

When playback is started, the auto tracking function operates and adjusts tracking automatically so the picture is optimized. "TRACKING" flashes in the display for several seconds and then changes to steady lighting.

- Auto tracking may not operate correctly when the tape is scratched or the recorded condition is poor. In this case, press the tracking control button (▼ or ▲) to adjust tracking.
- If the AUTO TRACKING button is pressed after operating the tracking control button (▼ or ▲), auto tracking operates again.

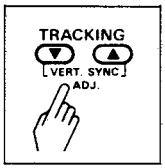
SPECIAL CHARACTERISTICS

Still playback



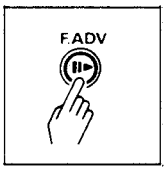
Press the STILL/PAUSE button to stop the picture on the screen during playback. Press the STILL/PAUSE button again to reset to normal playback or the STOP button to stop the tape.

Notes:



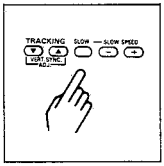
- If you see vertical shaking on the TV screen in the still playback mode, press either TRACKING button (▲ or ▼) to minimize shaking.
- When the still playback mode continues for about 5 minutes, the VTR switches to the stop mode automatically to prevent damage to the tape.
- The playback picture will contain some noise in the still playback mode. Set the VTR to the slow play mode and reduce noise with the TRACKING buttons. Noise can also be reduced in the still play mode.

Frame advance



Press the F.ADV button to advance the picture to the next frame of the scene during still playback. Pressing and holding the F.ADV button advances the frames continuously.

Slow function



Press SLOW button on the remote control unit during playback, and the tape is played back at slow speed. Then use the SLOW SPEED buttons on the remote control unit to vary the playback speed.

Notes:

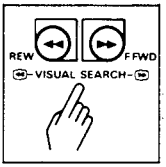
- When noise appears in the slow playback pictures, it can be removed by pressing the TRACKING buttons on the remote control unit. Removing the noise in the slow playback also lets you enjoy a noisefree picture in still playback.
- When the slow playback mode continues for about 5 minutes, the VTR switches to the stop mode automatically.

Dual-speed playback

During playback, press and hold PLAY button for a few seconds, and then release the button. The VTR plays the tape at twice the normal speed. Press the PLAY button again to return to normal playback.

- The picture may shake horizontally depending on the TV connected.
- When noise occurs in the picture, it can be moved by pressing the TRACKING buttons.

Visual search

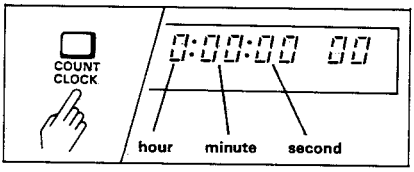


Press either the REW or F.FWD button during playback. Pictures can be viewed at high speed in either the forward or reverse direction. Press the button again (or press PLAY) button to return to normal playback or press the STOP button to stop tape.

Press and hold the REW or F.FWD button in the visual search mode. Pictures can be viewed at higher speed than in normal visual search. Release the button to return to the normal playback mode.

Linear Time Counter

Shows length of tape run in hours, minutes and seconds.
Press COUNT/CLOCK select button to select the linear time counter display. Every press COUNT/CLOCK select button changes the VTR's display between the clock time display and time counter display.



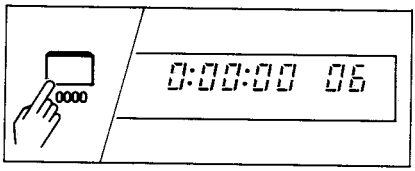
- Counter changes to 0:00:00 when the cassette is ejected.
- Tape starts moving from 0:00:00 and counter indicates amount of elapsed time.

Note: The linear time counter does not operate when nothing is recorded on the tape.

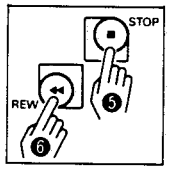
Counter memory function

This is useful if there is a section of tape you want to view immediately after recording or if you want to return to the same point several times.

1. Begin recording or playing back a tape.
2. Press the COUNT/CLOCK button to display the time counter in the display.
3. At the point where you want playback to begin, reset the tape counter to "0:00:00" by pressing the 0000 button.



4. Continue to play or record.
5. Press the STOP button when recording or playback finishes.
6. Press the REW button.

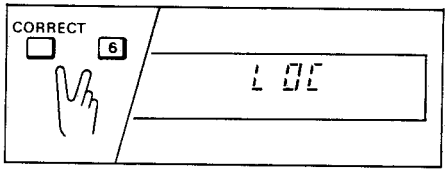


The tape will stop automatically at approximately the "0:00:00" position.

Note: The counter memory function will also operate in the fast-forwarding mode.

Mode lock function

When you want to lock the current VTR mode, such as when recording, playing back, etc., press the CORRECT button and button number 6 on the remote control unit simultaneously. When the mode is locked, " L OC " appears in the VTR display and also "( )" is displayed on the TV screen.



During the mode lock, the VTR accepts the remote control operations but it does not accept any button operations on the VTR's front panel. To release the mode lock, press the CORRECT button and button 6 simultaneously again or press the OPERATE button on the remote control unit.

Automatic rewind

The VTR automatically rewinds the tape when the end of the tape is reached.
Note: To prevent accidental erasure, the VTR does not rewind the tape after timer recording.

Rewind shut off

If the OPERATE switch is pressed during rewind operation, power will be turned off automatically after the tape has been completely rewound.
Note: If the time counter is turned on, the VTR will stop rewinding and switch off at the specified position.

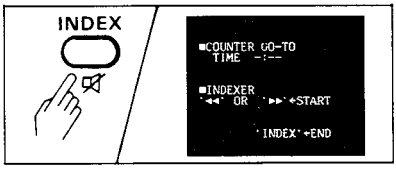
Index function

Cassette tape may be recorded using the tape indexing feature for rapid location of any section.

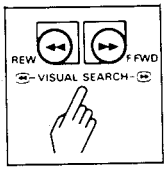
To record using the indexing feature
Record as usual. Each time you press the REC button to begin recording, an index signal is recorded on the tape.
Note: The index signal is not recorded if the PAUSE button is pressed and released during recording. Press the REC button from stop. If two programmes are recorded from the same station with one immediately follows the other, press the STOP button after the first programme. Press the REC button to resume recording. This inserts an index signal at the beginning of each programme.

To locate a programme using the indexing feature
The index function allows to view the first few seconds of all recordings on the tape. This also allows you to jot down all recording on the tape easily.
To locate a programme using index feature, turn on OPERATE switch of the VTR and insert a cassette which was recorded using the tape indexing feature then operate as follow.

1 Press the INDEX button.



2 Press the REW or F.FWD button. The tape will be rewound or fast forwarded until an index mark is detected.



3 When the VTR has located an index mark, it will enter the playback mode for approximately 10 seconds. This is long enough for you to recognize the programme. Then the VTR winds tape to the next index mark in sequence.

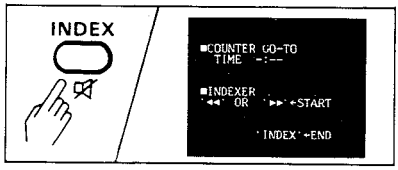
4 When you see the programme you want to watch, press the PLAY button.
The INDEXR indicator on the TV screen will be turned off.

COUNTER GO-TO function

The VTR will automaically search from anywhere on the tape (either forward or backward) for a certain location on the tape using the time counter.

1 Press the COUNT/CLOCK button to display the time counter in the display.

2 Press the INDEX button on the remote control.



3 Press the number buttons (0 through 9) to enter the amount of time (hour and minute) you want to advance the tape (either the forward or backward).
Then press the F.FWD button to advance the tape forward or the REW button to advance the tape backward.

Example 1: You are at the beginning of the tape and want to locate the beginning of a recorded programme you made after the first 1 hour and 30 minute-programme, you should enter "1:30" in the display. Press "1", then "3", and then "0". Then press the F.FWD button to advance the tape forward.

Example 2: You are in the middle of a tape and want to skip the next 35-minute recording on the tape. You should enter "0:35" in the display.
Press "0", then "3", and then "5". Then press the F.FWD button to advance the tape forward.

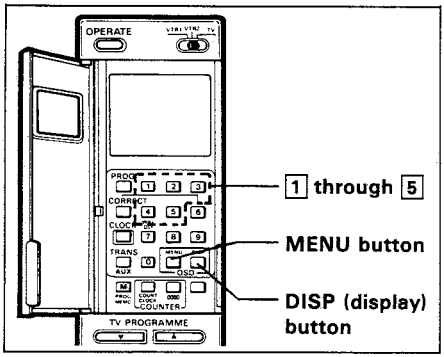
Example 3: You are in the middle of the tape and have just watched a 45-minute programme that you would like to watch again. You should enter "0:45" in the display. Press "0", then "4", and then "5". Then press the REW button to advance the tape backward.

Note: If you enter an incorrect number, press "0000" button on the remote control, and then enter the correct number.

4 The VTR will automatically fast forward or rewind the tape to locate the point on the tape you have chosen, and begin playing back the tape.

ON-SCREEN DISPLAY

Pressing the MENU button will display various menus on the TV screen.

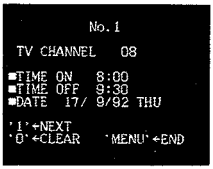


1. Turn on the operate switches of the VTR and the TV, then set the TV to the pre-tuned video channel.
2. Point the remote control at the receiver on the front of the VTR.
3. Press MENU button. The "menu", as illustrated, will appear on the TV screen.

Press one of [1] – [5] to select the required display.

■ Checking (reviewing) the programme information

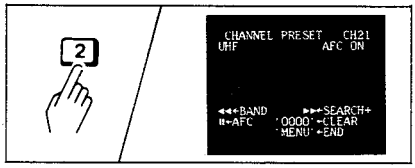
- Press [1]. The TV screen will display for 10 seconds the information you entered for the lowest programme number.



- Press [1] again if you want to view the next programme information.
- Pressing [0] will clear the programme.
- Press the MENU button to return to the original picture.

■ Pre-tuning of built-in TV tuner

- Press [2].
  The CHANNEL PRESET display appears on the TV screen.

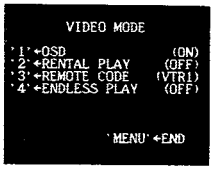


- Details for pre-tuning a built-in TV tuner are on page 12.

■ Video mode setting

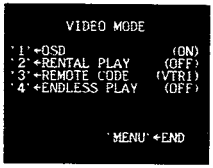
You can change the VTR mode as required.

- Press [3]. The "menu" as illustrated, will appear on TV screen.
  Press [1] through [4] to select the required function.



① OSD [ON] or [OFF]

Press [1] to change ➡



[ON]: Whenever you change the mode, the new mode is automatically displayed on the TV screen for a few seconds.

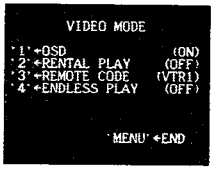
Notes:

- If the DISP button is pressed with the "OSD ON", the on-screen display will appear for a few second.
- When the DISP button is pressed again before the display disappears, the display will disappear from the TV screen.

[OFF]: The OSD will be switched off and nothing will be displayed on the TV screen even when the DISP button is pressed. When this is selected, no operation mode will be displayed on the TV screen even if the VTR is operated. This mode is useful to prevent recording of the On-Screen Display during copying a tape.

② RENTAL PLAY [ON] or [OFF]

Press [2] to select



[ON]: The VTR will automatically start playback when a cassette with the record-protect tab removed is inserted into the VTR.
Then the VTR will enter the rewind mode when the tape reaches its end or when the VTR plays the non-recorded section for approximately 30 seconds, and then VTR will eject the cassette at the beginning of tape.

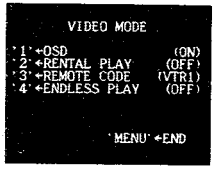
[OFF]: The rental play feature is switched off. (However, the VTR will automatically start play when a cassette with its record-protect tab removed is inserted into the VTR.)

Notes:

- It is impossible to set both the RENTAL PLAY and ENDLESS PLAY functions to [ON] at the same time. If you attempt to do so, the other function is automatically set to [OFF].
- When a cassette with its safety tab is loaded, rental play does not operate even if this function is set to [ON].

③ REMOTE CODE [VTR 1] or [VTR 2]

Press [3] to select



This display lets you control your VTR with the "VTR 1" or "VTR 2" position of the VTR 1/VTR 2/TV switch on the remote control unit.
This is convenient when you want to add another Hitachi VTR to your system, and control both VTRs with the same remote control unit.
The "VTR 1" position of the VTR 1/VTR 2/TV switch on the remote control will control the VTR you named [VTR 1] with this display, and the "VTR 2" position will control the VTR you named [VTR 2] with this display.

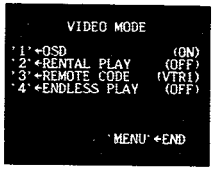
[VTR 1]: Your VTR will respond to the "VTR 1" position on the remote control.

[VTR 2]: Your VTR will respond to the "VTR 2" position on the remote control.

Note: The VTR will only respond to the remote code setting ([VTR 1] or [VTR 2]) you have selected. If you select [VTR 2] display, you must set the VTR 1/ VTR 2/ TV switch on the remote control to the "VTR 2" position before the VTR will respond to the remote control.

④ **ENDLESS PLAY [ON] or [OFF]**

Press [4] to select



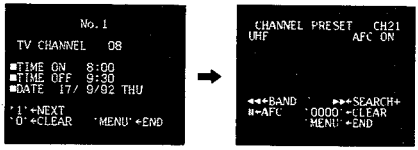
[ON]: You can play the tape from the beginning to the end repeatedly. While in the endless play, you can perform still play, frame advance and visual search operations, however, this does not mean switching off the endless play feature.
To switch off the endless play, you must select [OFF] with this display.

[OFF]: The endless play feature is switched off.

■ OSD effects demonstration

You can demonstrate OSD effects used in this VTR.

- Press [4].
  The pictures demonstrating the OSD effects are each displayed for about 10 seconds.



Note: When you select Spanish following the procedure below, the OSD effects are demonstrated in Spanish.

- Press MENU to end the OSD demonstration.

■ Language selection

You can change the language displayed on the TV screen.

1. Press [5].

   The language selection menu will appear on the TV screen.
2. Press one of buttons "1" through "3".
   "1" for English
   "2" for Italian
   "3" for Spanish
   From now, you can view the On-Screen Display in language you have selected.

TIMER RECORDING

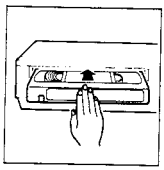
The programmable electronic clock/timer permits the unattended recording of 8 preselected programmes within a period of 1 year, including the same programme(s) repeated on every day and the same programme(s) every week. It turns the unit on and off and selects the programme automatically.

Preparations for timer recording

- Your TV does not have to be on to make a recording because the VTR records TV programmes without the aid of your TV. It is only used for monitoring.

1 Make sure that the clock shows the present time correctly.

2 Insert a cassette. Be sure to check that the record safety tab is not missing. If the record safety tab is missing, recording will not begin.



3 Programme the timer. See next page.

4 Turn the OPERATE switch off.

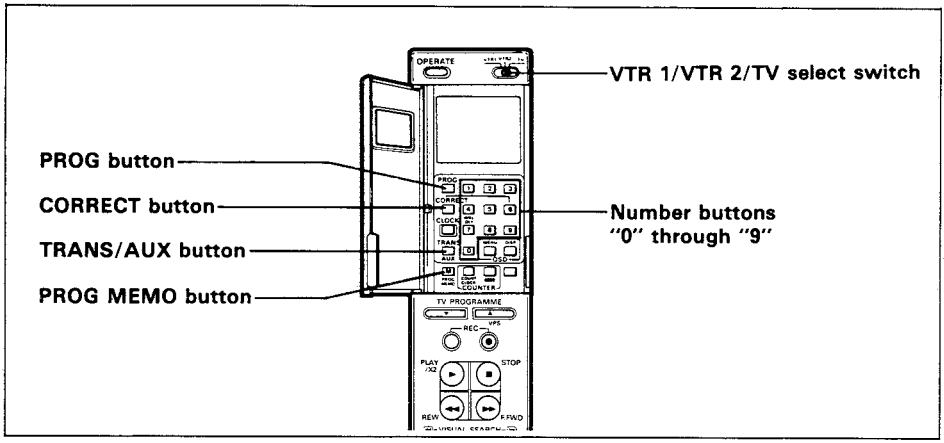
- If a cassette with its safety tab snapped off is inserted, it will be ejected automatically and ⏲ indicator in the VTR's display will start flashing when power is turned off. In this case, insert a cassette with its safety tab in place or cover the hole with cellophane tape.
- Also, if a cassette is not loaded in the VTR, ⏲ indicator starts flashing.

Programming the timer

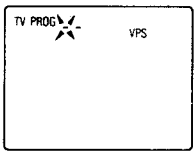
To programme the timer, first input the programme information using the remote control referring to its display and then transfer it to the VTR.

Things to know before starting

- Set the VTR 1/VTR 2/TV select switch to VTR 1 for programming the timer.
- While you are programming the timer, the display panel on the remote control unit will prompt you through the procedures.
- The OPERATE switch on the VTR may be on or off for programming the timer.
- Always press "0" before a single-digit channel, hour, and minute etc.
- You have about one minute to do each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must start over.
- You can correct an error in the programme any time before the last step by pressing CORRECT button repeatedly until the digit to be corrected becomes flashing and then enter the correct digit.

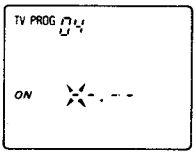


1 Press PROG button.



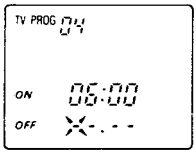
Note: When you press the PROG button, "VPS" will appear. Ignore these letters because they are not concerned with the VTR operation. If it is confusing, press the TV PROGRAMME (▲) button.

2 Select the TV station number to be recorded. For example, press 0 4 for the TV station 4.

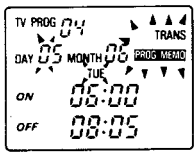


Note: Press TRANS/AUX button when recording video and audio from external equipment. "AUX" appears in the display panel in place of a station number.

3 Select the start time.
For example, press 0 6 0 0 for 6:00.

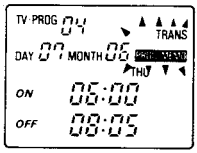


4 Select the stop time.
For example, press 0 8 0 5 for 8:05.

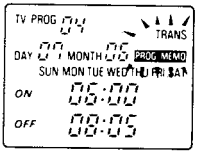


5 Select date for recording.

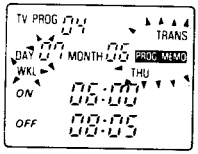
- To record on a single day up to one year ahead: For example, press 0 7 0 6 to begin recording on the 7th of June.



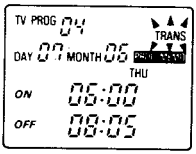
- To record at the same time every day of week: Press "7" (WKL/DLY) button once to display all days. Then select the first recording date.



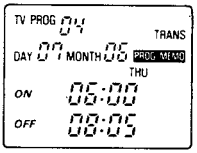
- To record on a specified day at the same time each week: Press "7" (WKL/DLY) button repeatedly until the desired day of the week you want to record appears.



6 Now, programming has been completed for one event. Press PROG MEMO button to store this programme in the memory of the remote control.
See "Storing programmes in the memory of remote control" on page 30 for details.



7 After programming, press TRANS/AUX button while aiming the remote control unit at the receiver on the VTR.



8 If you want to programme another programmes, perform steps 1 through 7.

9 Press CLOCK button to switch the display panel on the remote control unit back to the clock/calendar display.

10 To activate the VTR's timer and make a recording at the preselected time, be sure to turn the system power off. Of cource a cassette which has an intact safety tab must be inserted.

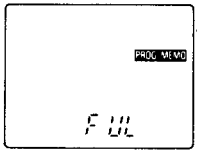
Operating notes

- If you select a TV station which is not displayed if the TV PROGRAMME button on the remote control is pressed, "Err" is displayed by the VTR when the TRANS/AUX button is pressed. In this case, correct the channel then transfer them to VTR.
- If TRANS/AUX button is pressed when all the programme numbers that the VTR can store are occupied, a "FUL" indication will appear in the display on the VTR and the information tranferred will be rejected.
- To stop recording after recording starts, press OPERATE button and then STOP button within 10 seconds.

Storing programmes in the memory of the remote control

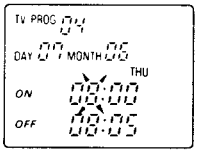
This remote control unit can store programmed information in its memory for up to 4 programmes. Press PROG MEMO button in step 6 on page 29 to store the details of the programme being displayed on the remote control in its memory. When storing the programme in memory, PROG MEMO lights to inform you. If you store a programme in memory, you can check or correct it easily.

Note: If you attempt to store another programme after storing 4 programmes, PROG MEMO does not appear in step 4. If PROG MEMO button is pressed at this time, the indication below appears to inform you that the memory is full.



Correcting a programme in memory of the remote control unit

1. Press PROG MEMO button to display the incorrect programme.
2. Press CORRECT button repeatedly until the incorrect digit flashes.

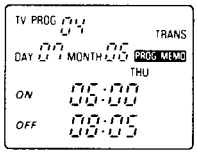


3. Press buttons 0 — 9 to input the correct digit.
4. After the correction, press CORRECT button until "TRANS" and PROG MEMO flash.
5. Press PROG MEMO button to store the programme.
6. Press TRANS/AUX button to transfer the programme to the VTR.

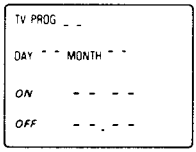
Note: The previously stored incorrect programme is rewritten with the new programme. However, when the incorrect programme has already been transferred to the VTR, it is stored in the memory of the VTR. Clear the programme by the procedures on page 31.

Clearing a programme from memory of the remote control unit

1. Press PROG MEMO button when the remote control is displaying the present time to display the programme to be cleared.



2. Press 0000 button.
   The programme will be cleared.

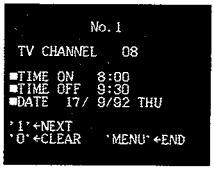


Note: When a programme is cleared from the memory of the remote control, it is not cleared from the VTR's memory. To clear the programme from the VTR's memory, see the next page.

Recalling and clearing the programme from the VTR's memory

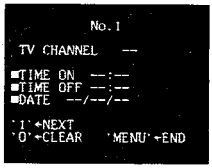
1. Turn on VTR and TV.
2. Be sure that the TV is set to the video channel.
3. Press the MENU button.
   The OSD menu appears on the TV screen.

4. Press "1" button (Programme Review).



   The TV screen will display for 10 seconds the information you entered for the lowest programme number. Then the display changes to the next higher programme number and so on, until all programme information has been displayed.

5. Press "1" again if you want to view the next programme information immediately.
6. To clear a programme, press the [0] button when the programme information you want to clear is displayed.

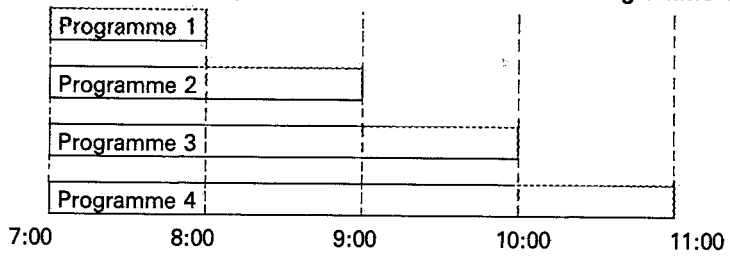


   Note: Normal programme is cleared automatically when the timer recording is finished, but daily and weekly programmes remain in the timer even after the timer recording is finished.

7. When you finish reviewing the programmes, press the MENU button to switch off the on-screen display.

Programme priority

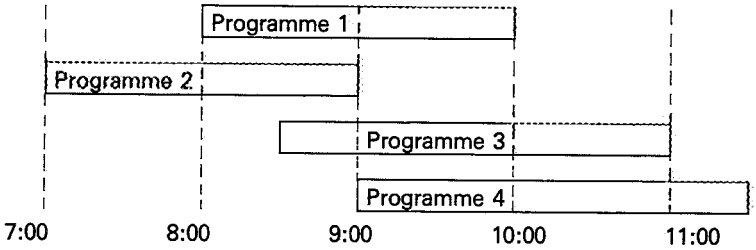
Example 1: When the programme start time is the same among the programmes on the same day, they are recorded in the order of Programme 1, 2, 3 ---- 8.



7:00 — 8:00 for Programme 1
8:00 — 9:00 for Programme 2
9:00 — 10:00 for Programme 3
10:00 — 11:00 for Programme 4

Programme 1 is executed as programmed, and Programme 2 as illustrated after Programme 1, and Programme 3 as illustrated after Programmes 1 and 2, and Programme 4 as illustrated after Programmes 1, 2 and 3.

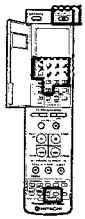
Example 2: When the programmes overlap, an earlier programme has priority.



7:00 — 9:00 for Programme 2
9:00 — 10:00 for Programme 1
10:00 — 11:00 for Programme 3
11:00 ~ for Programme 4

Programme 2 is executed as programmed, and Programme 1 as illustrated after Programme 2, and Programme 3 as illustrated after Programmes 2 and 1, and Programme 4 as illustrated after Programmes 2, 1 and 3.

HOW TO OPERATE YOUR TV BY USING THE REMOTE CONTROL UNIT

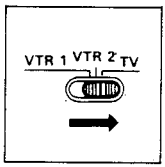


This remote control unit is designed to operate ten different types of TVs, you must first programme the remote control unit to match the remote system in your TV.

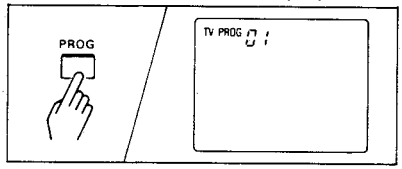
1 Install the batteries in the remote control unit.

2 Turn on your TV.

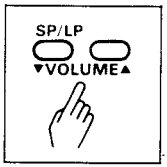
3 Set VTR 1/VTR 2/TV select switch to TV.



4 Press PROG button. "TV PROG" and "01" appear in the display.

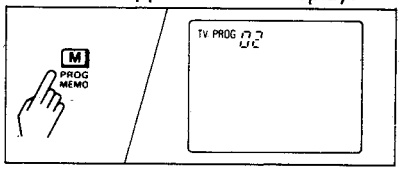


5 Point the remote control unit toward front of your TV, then press and hold down VOLUME (▲ or ▼) button.

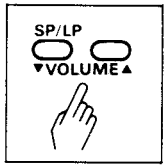


- If your TV changes volume, your TV can be controlled by this remote control unit. Press PROG button to clear the "TV PROG 01" in the display. The buttons on the remote control unit shown on next page will now control your TV.
- If your TV does not change volume, follow the next procedure.

6 Press PROG MEMO button. "TV PROG 02" appears in the display.



7 Point the remote control unit toward front of your TV, then press and hold down VOLUME (▲ or ▼) button.



- If your TV does not still change volume, press PROG MEMO button and try "TV PROG 03", "TV PROG 04" - - - - - - - "TV PROG 10".

Note: The TV PROG number is counted down one by one every time the CORRECT button is pressed.

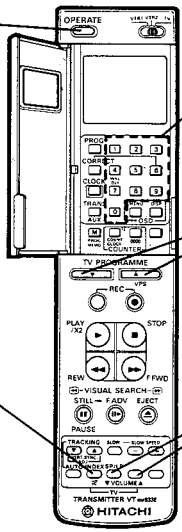
8 If your TV does not respond to any of the above steps, the remote control unit can not operate your TV.

IMPORTANT NOTICE:
While Hitachi's remote control unit is compatible with most television sets, it is possible that the remote control unit will not work with your TV set.

Most buttons on the remote control unit will not control the TV unless the VTR 1/VTR 2/TV select switch is set to TV. If the switch is set to VTR 1 or VTR 2, you can not control your TV. Be sure to check that the VTR 1/VTR 2/TV select switch is set to TV when you control your TV.

OPERATE Button
- Press to turn on your TV.
- Press again to turn off your TV.

Mute button
- Press Mute button to quickly reduce sound to minimum level without affecting picture.
- To restore sound, press Mute button again.



Number Buttons 0 ~ 9
- Depending on the type of TV, these buttons can either control the TV or not.

TV PROGRAMME ▲/▼ Buttons
- Press TV PROGRAMME (▲ or ▼) to change your TV channel.

VOLUME ▲/▼ Buttons
- Press VOLUME ▲ to increase volume.
- Press VOLUME ▼ to decrease volume.

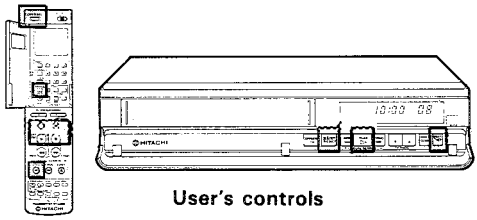
Notes:
- To select channels 10 ~ 19 on the TV, press the MENU button and then buttons 0 ~ 9. When selecting channel 17, for example, press the MENU button and then button 7.
  To select channels 20 ~ 29, press the DISP button and then buttons 0 ~ 9. When selecting channels 26, for example, press the DISP button and then button 6.
- Only the remote system of the Mute feature is different between remote transmission codes "TV PROG 02" and "TV PROG 03". When only the Mute feature is not operated properly by the remote control with "TV PROG 02" ("TV PROG 03") selected, set the transmission code to "TV PROG 03" ("TV PROG 02").
- With some TVs, TV channel 12 can be selected by pressing the MENU button and then number buttons 1 and 2.
- The remote control has a memory which enables it to operate some Hitachi TVs and, in the same way, some TVs from other manufacturers.

TV code	01	02	03	04	05	06	07	08	09	10
Coding system	NEC$53 PAL-53	NEC$50 UK-1	NEC$50 PAL-50	NEC$53 UK-2	SIEMENS	ITT	RC-5	—	Sony	Panasonic
Type of TV	Hitachi TV	Hitachi TV	Hitachi TV	Hitachi TV	Hitachi, Finlux TV	Hitachi TV	Philips, Loewe TV	—	Sony TV	Panasonic TV

- Column "Type of TV" shows the TVs as an example. Use this table as a reference when setting TV codes.

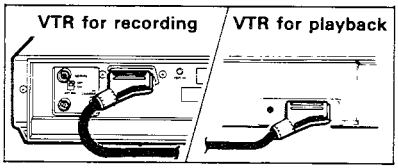
TAPE DUBBING

This Hitachi video cassette recorder allows you to record from another VTR by connecting 21-pin EURO jack located on the rear panel of the VTRs. This connection permits easy tape copying.



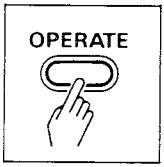
User's controls

1 Connect a second VTR to this VTR.

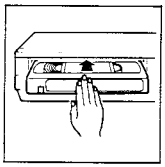


In this case, the TV must be connected to RF OUT terminal of the VTR.

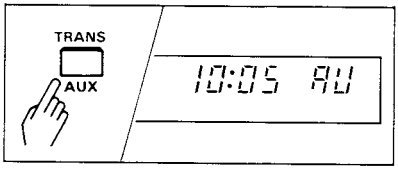
2 Switch both VTRs and the TV on.



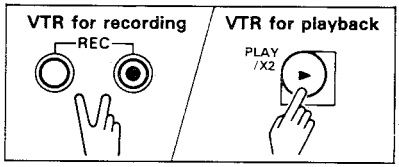
3 Insert a blank cassette into the VTR for recording, and source cassette into the playback VTR.



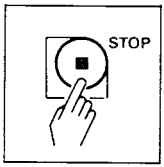
4 Press the TRANS/AUX button to select the AU (auxiliary input) position if you use this VTR as a recorder.



5 Press the REC buttons on the recording VTR and PLAY on the playback VTR.

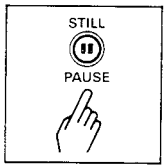


6 To end tape dubbing, press both STOP buttons.



To edit out unwanted material

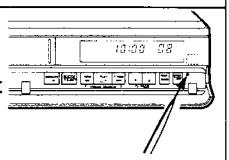
If you want to edit out unwanted material, press the PAUSE button at the appropriate time on the recording VTR while it is recording. Press the PAUSE again to resume recording.



NOTE: The remote control unit provided can perform remote operation of both VTRs. See page 9 for details.

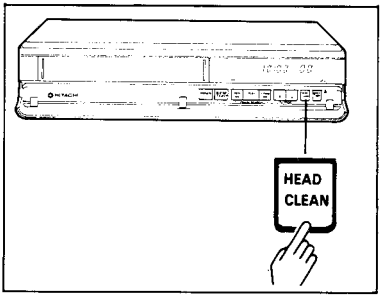
PROBLEM GUIDE

Sometimes problems can be solved easily by checking a few basic things. Check below before you call for help or take your unit to your dealer.

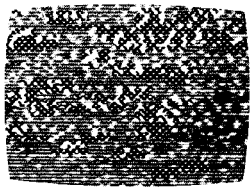
PROBLEM	SOLUTION
No power	• Check to see if the VTR is plugged into an AC outlet.
Does not respond to remote control unit	• Check to see if there are batteries in the unit and their polarities are correct. • VTR 1/VTR 2/TV switch must be in the VTR 1 position. • Remote control unit not aimed at the VTR. • Weak battery in the remote control unit.
Will not record	• No cassette in the VTR. • Erase prevention tab removed from cassette. (In this case, cassette will be ejected.)
Will not playback	• No cassette in the VTR. • For playback, TV must be tuned to UHF channel 37. • Set the TV to the video input mode when the VTR and TV are connected via DIN or EURO connector (see your TV manual).
Snowy/noisy picture during playback	• Make sure the TV is fine tuned. • Head cleaning may be required. See "MAINTENANCE" section. • Some snow or streaks are normal during visual search, still and slow playback.
Timer recording not made	• VTR should be turned off to activate timer recording. • Programmes entered incorrectly. • Clock was not set correctly. • Programme exceeded cassette length. • No cassette or cassette's record safety tab removed.
Cassette stops before being completely rewound	• Counter memory has operated. (Tape stops at "0:00:00" if time counter is on.)
Clock shows ——:——	• Power interrupted.
Poor/no picture in normal TV viewing	• Carefully check aerial connection.
The indication of the VTR's display appears abnormal or no button can be engaged.	• Push the reset switch using a toothpick, etc. The display will be reset. Then set the information again. 

MAINTENANCE

1. To maintain the optimum performance of this VTR, regular periodic maintenance is required. Your dealer will advise you further.
2. Maintenance and adjustments may not be carried out by the user. In all cases of difficulty or doubt, consult your dealer.
3. Head cleaning
   Dirt accumulated on the video heads after a period of time may cause the playback picture to become blurred or part of the video information to be lost. This does not mean that the recorded programme has been erased but head cleaning is required.
   Since this VTR uses an auto head cleaning system, dirt does not often adhere to the heads.
   Even when it is difficult to remove dirt using this system, you can remove it using the HEAD CLEAN button.
   - Insert a cassette and press the HEAD CLEAN button while the VTR is in the stop mode. The cleaning roller cleans the heads. When the TV is turned on, "HEAD CLEANING" will appear on the screen.



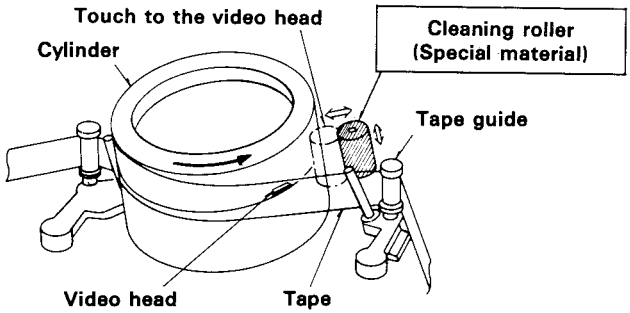
- When the HEAD CLELAN button is pressed once, the head cleaning operation is performed once. (It takes about 10 seconds).
- If dirt cannot be removed, perform the cleaning operation several times.
- Mechanical sound is heard slightly during head cleaning.
- If dirt cannot still be removed, consult your dealer.



Auto Head Cleaning System

This system cleans the video heads automatically when a cassette is inserted and ejected or the operate switch is turned on or off while a cassette is in the VTR, to prevent dirt from accumulating on the heads. A HEAD CLEAN button is also provided for manual cleaning.

NOTE: Mechanical sound is heard during head cleaning.



SPECIFICATIONS

Format:	VHS PAL Standard
Recording:	Rotary Two-Head Helical Scan Azimuth Recording
Tape Speed:	23.39 mm/sec. — SP, 11.7 mm/sec. — LP
Tape Width:	12.7 mm
Operation Temperature:	5°C to 40°C
Video:	PAL colour (system B & G) & CCIR monochrome signals 625 lines
Recording Time:	240 min. with E-240 cassette — SP 480 min. with E-240 cassette — LP
Aerial Input:	VHF channels 2 — 12 CATV channels S1 — S20 UHF channels 21 — 69
RF Output:	UHF channel 37 (32 — 42 adjustable) (System G)
Video Input:	0.5 to 1.5Vp-p 75 ohm Unbalanced
Video Output:	1Vp-p 75 ohm Unbalanced
S/N Ratio (Video):	More than 43 dB
Horizontal Resolution:	Colour 260 lines
Audio	
Input:	−3.8 dBm 50 Kohm
Output:	−3.8 dBm 1 Kohm
S/N Ratio:	43 dB
Frequency Range:	70 Hz to 12 kHz
Power:	AC 230V 50 Hz
Power Consumption:	21W (including timer)
Timer:	24-hour digital indication
Cabinet Size:	370 mm(W) x 86 mm(H) x 328 mm(D)
Weight:	Approx. 5.4 kg
Accessories Included:	1 — Aerial cable 1 — Infrared remote control unit 2 — Batteries

* Design and specifications are subject to change without notice.

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